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ABSTRACT

A study examined some of the questions that have been raised regarding D. A. Infante and A. S. Rancer's (1982) Argumentativeness Scale. Specifically, the wording of the scale was examined. Operating under the principle that the use of the process word "arguing" and the product word "argument," as well as mention of issues or failure to mention issues affects responses to the scale, four versions of the scale were created. The four versions were consistently worded to reflect: (1) arguing over issues; (2) argument; (3) argument over issues; and (4) arguing. Findings demonstrated that versions that referred to issues differed from versions that did not mention issues. Further, versions that mentioned issues differed from the original Argumentativeness Scale. One possible explanation for the findings was that the mention of issues addresses content, while failure to mention issues causes most respondents to believe the item is referring to relational arguments. Findings suggest that further refinement of the argumentativeness operationalization should be addressed. (Two tables of data are included, and 28 references are attached.) (SR)

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AN EMPIRICAL ANALYSIS OF THE ARGUMENTATIVENESS SCALE: THE ISSUE OF ISSUES

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An Empirical Analysis of the Argumentativeness Scale: The Issue of Issues

- Abstract -

This study examines some of the questions that have been raised regarding Infante and Rancer's (1982) Argumentativeness Scale. Specifically, the wording of the scale is examined. Operating under the principle that the use of the process word "arguing" and the product word "argument", as well as mention of issues or failure to mention issues affects responses to the scale, four versions of the scale were created. The four versions were consistently worded to reflect 1) arguing over issues, 2) argument, 3) argument over issues, and 4) arguing.

The findings demonstrated that versions that referred to issues differed from versions that did not mention issues. Further, versions that mentioned issues differed from the original Argumentativeness Scale. One possible explanation for the findings was that the mention of issues addresses content, while failure to mention issues causes most respondents to believe the item is referring to relational arguments. Suggestions were made for further refinement of the argumentativeness operationalization.

AN EMPIRICAL ANALYSIS OF THE ARGUMENTATIVENESS SCALE: THE ISSUE OF ISSUES

Introduction

Infante and Rancer's (1982) argumentativeness concept and operationalization have received much attention. Indeed, more than twenty studies have been based on Infante and Rancer's Argumentativeness Scale (Jones, 1988). The argumentativeness concept seems popular because it has been found to correlate with a number of other variables such as higher grade point average (Infante, 1982), lower verbal aggressiveness (Infante, Trebing, Shepherd & Seeds, 1984), and argumentative skill (Infante, 1981). Of even greater importance is the claim that the argumentativeness measure is able to predict behaviors that are purported to be modifiable by training in communication skills (Infante, 1982).

Although Infante and Rancer's (1982) scale appears to have strong reliability and validity, it has received criticism on the basis of two major weaknesses. First, it appears as if there may be a theoretical flaw in Infante and Rancer's (1982) assertion that the content based argumentativeness construct is distinctly different from the more relationally based construct of verbal aggressiveness (Jones, 1988). Second, there is a question concerning the social desirability effects of the wording of the scale (Nicotera, 1989).

In addition to these specific criticisms, an examination of the Argumentativeness Scale reveals that the scale exhibits face validity for some degree of argumentativeness, but the ambiguous and inconsistent use of terms such as "arguing," "argument over issues," and "argument" create the danger of a scale which may be too convoluted to measure a single identifiable construct. The purpose of the

present study is to conduct an empirical analysis of the Argumentativeness Scale in an attempt to address and more succinctly define the problems that exist with the measure.

Review of Literature

The Argumentativeness Concept

Infante and Rancer (1982) first described argumentativeness as a, "generally stable trait which predisposes the individual in communication situations to advocate positions on controversial issues and to attack verbally the positions which other people take on these issues" (p. 72). In other words, argumentativeness is an identifiable personality trait which should be high in individuals who argue frequently, and low in persons who argue infrequently.

In defining the concept of argumentativeness, Infante and his colleagues (Infante and Rancer, 1982; Infante and Wigley, 1986), have taken pains to distinguish argumentativeness from the related but independent concept of verbal aggressiveness. For example, the researchers state, "argumentativeness involves the tendency to advocate and refute positions on controversial issues" (Infante & Rancer, 1982, p. 74). The researchers then define verbal aggressiveness as containing elements of disdain, humiliation of the other, and damage to the other's self-image, in a context of forcefulness and interpersonal dominance.

Thus, although argumentative and aggressive communication behaviors may appear very similar to the casual observer, the intent and motivation as well as the function of the communicator's behaviors will determine whether the behavior is aggressive or argumentative. For example, Infante and Rancer (1982) explain, "a meaningful distinction can be made which is based on the ad hominum fallacy, ... The issue versus person as the object of argument suggests not only two different types of argument, but also two different motivations of communicators" (p. 72).

A second primary point of Infante and Rancer's (1982) conceptualization of argumentativeness is that argumentativeness consists of both trait and state dimensions. The general trait to be argumentative (ARG_g) is based on the interaction between the tendency to approach arguments (ARG_{ap}) and the tendency to avoid arguments (ARG_{av}). Specifically, the researchers indicate that trait argumentativeness is: $ARG_g = ARG_{ap} - ARG_{av}$.

Infante and Rancer (1982) base their trait conceptualization on Atkinson's (1957, 1966) approach-avoidance model of motivation. Accordingly, the researchers claim that approach and avoidance are competing tendencies, yet are independent. In other words, a person high in argumentativeness would be high on ARG_{ap} and low on ARG_{av}. An individual low on argumentativeness would be high on ARG_{av} and low on ARG_{ap}. However, the researchers claim that moderate argumentatives vary a great deal from one another. The individual who is moderate in general trait argumentativeness may be either high on approach and high on avoid or may be low on approach and low on avoid. Infante and Rancer explain that an individual who is high on both approach and avoid has strong positive feelings but also strong negative feelings which result in little argumentative behavior. The person who is low on both approach and avoid may be apathetic toward arguing and therefore behavior is moderated by incentive variables in the argumentative situation.

As the foregoing indicates, argumentativeness has a state dimension as well as a trait dimension. That is, each individual will vary with regard to willingness to argue depending upon situational variables. These state elements, then, must be taken into account in any attempt to predict behavior in real world contexts. As Infante and Rancer (1982) put it, "in some communication situations people low in trait argumentativeness will argue while people high in the trait will not argue" (p. 73). Without these state factors, the argumentativeness model is incomplete.

The variables affecting state argumentativeness are the individual's perceptions

of their probability of success or failure in the argument and of the importance of success or failure in the argument. Tendency to approach argument in any given situation, T_{ap}, is a function of the individual's general trait to approach arguments (ARG_{ap}), and the individual's perceptions of the probability and importance of success in that situation. Or, $T_{ap}=ARG_{ap}*P_s*I_s$. Similarly, the tendency to avoid an argument in a particular situation, T_{av}, is a function of individuals' general tendency to avoid arguments, ARG_{av}, and their perceptions of their probability of failure in the argument, and of the importance of failure in the argument. Hence, $T_{av}=ARG_{av}*P_f*I_f$.

State argumentativeness, or what Infante and Rancer (1982) refer to as resultant motivation (RM_{arg}), is an interaction of the tendency to approach the and the tendency to avoid a particular argument. The conceptual formula for resultant motivation is: $RM_{arg}=T_{ap}-T_{av}$.

This section examined Infante and Rancer's (1982) conceptualization of argumentativeness. An overview of both trait and state argumentativeness were provided. The focus of the present study is the measurement of trait argumentativeness. The following section examines research on the measurement of argumentativeness.

Measurement of Argumentativeness

Infante and Rancer's (1982) Argumentativeness Scale consists of twenty items which are responded to along a five-point Likert-type scale ranging from "almost never true" to "almost always true." In keeping with the perspective of the argumentative construct, the scale consists of ten approach items and ten avoid items. This section provides a brief overview of the steps taken in the development of the argumentativeness scale.

Infante and Rancer (1982) began with 45 items which were subjected to factor analysis in order to establish the dimensions of approach and avoid. The original 45

items also consisted of a verbal aggression dimension. This was confirmed by a three factor solution using the Kaiser Normalization (Kaiser, 1958) procedure which produced the factors approach, avoid and verbal aggression. The final twenty item scale consists of ten items each for approach and avoid. The factor analysis for the final scale demonstrated that most items loaded with sufficient weight on the appropriate dimension. However, for the final factor analysis, Catell's (1966) Scree test was employed as the criteria. The researchers report common variance as opposed to eigenvalues or total variance. Hence, it is difficult to know whether the Scree test may have forced a two factor solution that may be very different from a solution obtained by the Kaiser Normalization that was utilized for the earlier data.

Infante and Rancer (1982) introduced the twenty item argumentativeness scale with extensive studies of its reliability and validity. Tests for internal consistency resulted in Cronbach alpha estimates of .91 for the approach items and .86 for the avoid items. Test-retest (one week) reliability produced correlations of .87 for ARG_{ap}, .86 for ARG_{av}, and .91 for ARG_{gt}. These figures indicate that the measure has acceptable stability.

Measures of validity were also provided by Infante and Rancer (1982). Specifically, the study reported evidence of construct, concurrent, and convergent/discriminant validity. As evidence of construct validity, the research participants' friends were asked to respond to reworded versions of the scale items as reports of research participants' actual communication behavior. The Pearson correlations between the friends' perceptions and participant's responses were .54 ($p<.001$) for ARG_{ap} and .42 ($p<.02$) for ARG_{av}.

Concurrent validity was measured by correlating scores on the argumentativeness scale with scores on McCroskey's (1970) Personal Report of Communication Apprehension (the earlier version of the PRCA as opposed to the PRCA-24, 1982); Mortensen, Arnston, and Lusting's (1977) Predisposition Toward

Verbal Behavior Scale (PVB); and Burgoon's (1976) Unwillingness to Communicate Scale (UWC). With the exception of the reward dimension of the UWC scale, the analysis produced statistically significant ($p<.05$) results in the expected direction (Infante & Rancer, 1982). Hence, ARG_{ap} and ARG_{av} scores relate to other measures as the conceptualization predicted and appear to have good concurrent validity.

Evidence of convergent and discriminant validity was presented as Infante and Rancer (1982) requested research participants to rate their willingness to participate in additional communication studies, one of which involved argument. Statistically significant ($p<.05$) correlations were found for ARG_{ap} ($r=.30$) and ARG_{av} ($r=-.37$) scores and desire to approach the argumentative situation. Similarly, statistically significant correlations were found for ARG_{ap} ($r=-.39$) and ARG_{av} ($r=.35$) scores and desire to avoid the argumentative situation. As expected, ARG_{ap} and ARG_{av} failed to correlate significantly with the desire to approach or avoid any of the other three studies. This indicates that the argumentativeness operationalization has good convergent and discriminant validity.

In addition to the variables used to demonstrate validity, Infante and Rancer's (1982) argumentativeness operationalization has been shown to correlate with a number of other variables. For example, Infante (1982) found that high argumentatives reported higher grade point averages, preferred smaller classes, chose professions requiring more communication, had more high school training in argumentation, and were earlier in birth order than low argumentatives. Infante also found that more males than females were high argumentatives. Based on a median split, 58% of males and 41% of females were high argumentatives. Conceptually, these findings appear to be consistent with the argumentativeness construct.

Rancer, Baukus and Infante (1985) tested beliefs about argument and found that high argumentatives have prevalently positive beliefs about arguing, while low argumentatives have prevalently negative beliefs about arguing. This, too, is

conceptually consistent with the argumentativeness construct. Further, it suggests the importance of argumentativeness to the speech communication discipline. The researchers suggest that by changing belief structures, and therefore, predispositions toward arguing, instructors may strengthen and encourage the argumentativeness trait in students, thereby, enhancing students' argumentative and rhetorical skills.

From the perspective of speech communication pedagogy, then, the argumentativeness construct offers a real opportunity for changing the behavior of students. Combined with the conclusion of Infante, Trebing, Shepherd and Seeds (1984) that high argumentatives are less verbally aggressive than low argumentatives, there is support for the notion that speech pedagogy may offer a real opportunity to reduce destructive conflict in interpersonal relations.

Argumentativeness has been shown to correlate with a number of important variables. Many of these variables suggest that improving argumentativeness is a worthy goal of speech communication teachers (higher GPA, lower verbal aggressiveness), while others suggest that such improvements are possible (more high school training in argumentation, more positive beliefs about argument). Hence, we should not be surprised that the construct and measure appear frequently in our journals and at our conventions.

Questions About Argumentativeness

Although, as Jones (1988) notes, Infante, Rancer, and their colleagues' research is systematic and an example of excellent scientific inquiry, serious criticism of the argumentativeness measure exists. This section examines some of the criticism of the Argumentativeness Scale and discusses some of the still unanswered questions.

Jones (1988) asserts there is a flaw in Infante and Rancer's (1982) theoretical efforts to distinguish between content based argumentativeness and relationally based verbal aggression. He supports his assertion by pointing out that the distinction is

based on a traditional and questionable view that argumentation is logical and separate from relational and emotional concerns. Indeed, Jones states that, "the assumption that argumentativeness is independent of verbal aggressiveness and dominance-submission appears to be dubious--content and relational aspects of communication, in formal as well as informal argumentation situations, appear to be highly interrelated" (p. 5).

One of the focuses of the present study is Jones' (1988) concern that the concept of argumentativeness has been constructed with little regard for the interdependence of the relational and content dimensions of argument. Indeed, communication scholars stress that this interdependence exists for all communication (Fisher, 1976; Ruesch & Bateson, 1951; Watzlawick, Beavin & Jackson, 1967). This concern is compounded by the argumentativeness scale, which appears to have its own difficulties regarding the separability or inseparability of these two dimensions.

Scores on the argumentativeness scale theoretically identify overall willingness to argue. Ten items on the scale measure tendency to approach arguments while ten measure tendency to avoid arguments. The wording of these items, however, seems to bias such measurement in a peculiar way. As Jones (1988) notes, most of the approach items include the notion of an argument involving "issues." In contrast, none of the avoid items mention issues. Additionally, none of the avoid items use the product term "argument," but instead use the process term "arguing" (see O'Keefe, 1977; 1982, Wentzel, 1982). Jones believes that the inconsistent and ambiguous use of these terms may cause respondents to interpret avoid items as referring to a relational process and approach items as referring to having an argument over (content) issues.

The difficulty is that the construct of argumentativeness does not suggest that motivation to approach argument is purely linked to the content dimensions, nor that motivation to avoid is linked purely to the relational dimensions. Yet, there is reason to

suspect the wording of the items biases the responses in such a way that those who are highly motivated to argue because of the content aspects will score more highly on approach than someone equally highly motivated to argue because of relational dominance. Conversely, someone who is motivated to avoid arguments on the basis of relational concerns is likely to score higher on avoid than someone who lacks ability or desire to address content aspects.

In sum, Infante and Rancer's (1982) scale is not consistent with a clear conceptualization of which factors motivate approach and avoidance--content, relational, or both. Approach items appear to be based on primarily content related motivations, while avoid items appear to be based on primarily relationally oriented motivations. Neither the conceptual reasoning behind the argumentativeness construct nor the research which has appeared suggests that the approach and avoid tendencies are linked separately and dichotomously to the content and relational dimensions of argumentative communication.

Recently, Nicotera (1989) also has questioned the effects of the wording of items on the argumentativeness scale. Her argument is based on the notion that responses to the scale items might be more a reflection of respondents' perceptions of the social desirability of the items rather than of their own behavior. That is, to the extent that respondents are sensitive to the social desirability of the items, they will be motivated to answer accordingly whether or not their own behavior is consistent with the responses.

Nicotera's research (1989) found that women and those late in birth order, who found the items on the argumentativeness scale to be less socially desirable than men and those early in birth order, also scored lower in argumentativeness. It is important to note that women and late birth order respondents can be expected to score lower on the argumentativeness scale than men and those early in birth order regardless of their actual behavior.

Perhaps of greater significance is the finding of Feezel, Gorden and Infante (1988) that the term "argument" has more negative connotations for people than other communication terms such as "conversation." Aditionally, Nicotera and Smilowitz (1988) report several respondents' negative reactions to the term "argument." It follows that social desirability effects result in respondents under reporting argumentative behaviors, and that those more vulnerable to social desirability would do so more than those less vulnerable to the effect. Nicotera (1989) cites Edwards (1953) as evidence that social desirability judgments by respondents may affect their endorsement of a trait in themselves on a personality scale. Furnham (1986) suggests that differential susceptibility of respondents to social desirability effects poses a real threat to the validity of an instrument. By Furnham's reasoning, a scale with high face validity such as the argumentativeness scale may be especially susceptible to the social desirability effect because respondents can easily determine what is being measured and thus can readily make social desirability judgments (Nicotera 1989).

Nicotera's (1989) findings are that sex and birth order vary with the social desirability of the items on the argumentativeness scale in the same way that sex and birth order vary with scores on the argumentativeness scale. This is strong evidence for her thesis that social desirability effects are compounding scores on the argumentativeness scale. Her prescription for improving the situation is this: The first step in revising the scale should be a replacement of the terms "argue" and "argument" in the scale items. These words should be replaced with more neutral terminology, with words that are not so different in the perceptions of males and females (Nicotera, 1989, p. 23).

Given the problems already identified by Jones (1988), however, this solution seems a bit simplistic. That is, simply removing the term "argument" from the scale might not resolve the confusion over the relational and content dimensions of argumentative communication. The present study, then, is an attempt to clarify the

issues raised by Jones (1988) and Nicotera (1989) and to seek guidance in finding ways to modify the argumentativeness scale and the conceptualization of argumentativeness.

If the terms "argument" and "arguing" have differing social desirability effects, and if they tend to make salient different dimensions of argumentative transactions, then alterations in their use may alter responses to the argumentativeness scale. Similarly, if mentioning or not mentioning issues alters the salience of the relational and content dimensions of arguments to respondents, alterations in mentioning issues may alter responses to the scale. Finally, different combinations of the words "argument"/"arguing" and the presence or absence of the word "issues" may alter responses to the scale. Therefore, the following hypotheses will be tested:

RH_1: There will be statistically significant different responses to versions of the Argumentativeness Scale that use the word "argument" and those that use the word "arguing."

RH_2: There will be statistically significant different responses to versions of the Argumentativeness Scale that mention issues (content-based) and those that fail to mention issues (relationally-based).

If either of the hypotheses are accepted, the following research questions will be asked:

RQ_1: Do versions of the Argumentativeness Scale that use stable terminology (i.e., issues/no issues) differ from the original scale?

RQ_2: What is the nature and degree of the relationship between semantic judgments on terms of arguing/argument and issues/no issues and responses to the various versions of the Argumentativeness Scale?

METHODS

Research Participants

The sample for the present study consists of 568 research participants. All of the participants were students enrolled in basic speech communication courses at a large midwestern university. Two hundred and fifty three of the participants are male, while the remaining 315 are female.

The majority of the research participants were first-year or sophomore students during the period of data collection. Specifically, the sample consists of 276 first-year students, 115 sophomores, 92 juniors, and 84 seniors or fifth year students. One research participant failed to report a year in college.

Participation by the students was voluntary, their grades were not affected by whether or not they participated. Additionally, all data was collected in an anonymous manner.

Instrumentation

The instrumentation for the present study consisted of four primary parts. The first part was a demographics page. The second part was a measure of argumentativeness. The third part was a measure of verbal aggression. The final part of the instrumentation consisted of a semantic differential scale.

All participants were asked to respond to five demographic questions. The demographic questions concerned gender, year in school, birth order, number of siblings and whether or not the respondent had ever been on a debate team. Participants were able to respond to birth order along the range from "first" to "fourth or more." No distinction was made between nine or more than nine siblings. This variety of demographic information was obtained in order to attempt to explain findings.

The second part of the instrumentation was a measure of argumentativeness.

Five different measures were used, the original Infante and Rancer (1982) Argumentativeness Scale ($form_1$) and four variations of the scale ($form_2$ through $form_5$). Each of the research participants was randomly assigned only one of the five forms.

The variations in the forms employed specific wordings to aid in the investigation of the hypotheses and research questions. $Form_2$ (INGISS) consistently employed the term "arguing controversial issues." For example, item four of the original scale reads, "I am energetic and enthusiastic when I argue" while $form_2$ reads, "I am energetic and enthusiastic when arguing controversial issues." $Form_3$ (MENT) consistently employed the word "argument" but made no mention of issues. Item four of $form_3$ reads, "I am energetic and enthusiastic in arguments." $Form_4$ (MENTISS) consistently uses the term "argument over controversial issues." Item four of $form_4$ reads, "I am energetic and enthusiastic when in an argument over controversial issues." $Form_5$ (ING) consistently used the process word "arguing" but made no mention of issues. Item four on $form_5$ is similar to item four on the original $form_1$. However, item 9 reads, "I enjoy a good argument over a controversial issue" on $form_1$, but reads, "I enjoy arguing well" on $form_5$.

As with the original Infante and Rancer (1982) Argumentativeness Scale, all four variations consist of twenty items. Ten items measure tendency to approach argumentation while ten items measure tendency to avoid argumentation. All items are responded to on a five point Likert-type scale ranging from (1) almost never true for you, to (5) almost always true for you. General trait argumentativeness is operationalized as the difference between tendency to approach arguments and tendency to avoid arguments.

Infante and Rancer (1982) reported Cronbach alpha estimates of internal consistency as .91 for the approach items and .86 for the avoid items ($n=692$). The present study yielded Cronbach alpha reliability estimates of .87 for approach and .83 for avoid based on those subjects ($n=112$) who were randomly assigned the original

form$_1$. Reliability estimates for the variations of the scale ranged from .84 (form$_3$) to .88 (form$_4$) for approach and .79 (form$_2$) to .87 (form$_4$) for avoid.

The third part of the instrumentation was a measure of verbal aggression using Infante and Wigley's (1986) Verbal Aggressiveness scale. The scale consists of 20 items which are responded to along the same five point Likert-type scale used for the Argumentativeness Scale. Infante and Wigley reported a Cronbach alpha reliability estimate of .81 for the scale. The present study yielded a Cronbach reliability estimate of .84.

The final part of the instrumentation consisted of a semantic differential measure containing four semantic terms. The semantic terms were; "arguing," "argument," "arguing over issues," and "argument over issues." Research participants responded to the semantic terms via a five point semantic differential scale along three bipolar terms. The three bipolar terms were; positive/negative, attractive/unattractive, and acceptable/unacceptable. The valence of the middle bipolar term was reversed for each semantic term to avoid response sets.

In order to determine if summing the responses to the bipolar terms for each of the semantic terms was acceptable Cronbach alpha reliability estimates were computed. The results produced reliability estimates of .69 for arguing, .70 for argument, .77 for arguing over issues, and .74 for argument over issues. Although higher alpha's are desirable, one would expect very low alpha's when only three items are considered (Allen & Yen, 1979). Therefore, these estimates are considered acceptable and responses to the items were summed for each of the semantic terms.

Data Analysis

Hypothesis one predicted significant differences in responses to versions of the Argumentativeness Scale that use the word "argument" and those that use the word "arguing." In order to test the hypothesis, the sample was divided in to two groups.

Group one consisted of the participants who were assigned to either form$_2$ or form$_5$ which both consistently used the word "arguing." Group two consisted of the participants who were assigned to either form$_3$ or form$_4$ which both consistently used the word "argument." Participants who were assigned to form$_1$, the original Argumentativeness Scale, were not included in the analysis. In order to determine for differences, three t-tests were computed; tendency to approach, tendency to avoid, and general trait argumentativeness. A two-tailed test probability level of .01 was established for determining statistical significance.

Hypothesis two predicted significant differences in responses to versions of the Argumentativeness Scale that mention issues (content-based) and those that fail to mention issues (relationally-based). In order to test the hypothesis, the sample was again divided into two groups. For this hypothesis, group one consisted of the participants who were assigned to either form$_3$ or form$_5$ which both consistently fail to mention issues. Group two consisted of the participants who were assigned to either form$_2$ or form$_4$ which both consistently refer to issues. Again, participants who were assigned to form$_1$, the original Argumentativeness Scale, were not included in the analysis. As with the first hypothesis, t-tests for avoid, approach and general trait were computed to test for differences. Again, a two tailed test for significance with a probability level of .01 was established.

Since at least one of the hypotheses was confirmed, additional analyses were conducted to address the exploratory nature of the research questions. The first research question sought to investigate whether significant differences exist between the original Argumentativeness Scale and the various versions. In order to examine differences, t-tests were conducted for the two dimensions (ARG_{ap} and ARG_{av}) and general trait (ARG_{g}) between the original form and each of the versions.

Research question two sought to determine the nature and degree to which the semantic terms relate to responses on each of the versions of the Argumentativeness

Scale. Multiple regression analysis was used in order to pursue the question. Specifically, a full equation was developed for each of the three scores (ARG_{ap}, ARG_{av}, ARG_{g}) for each of the five forms, using responses to the four semantic terms ("arguing," "argument," "arguing over issues," and "argument over issues") as the predictors. The equations were examined to determine how much variance in each scale could be explained by the equation (multiple R^2), and which semantic terms contributed to the specific argumentativeness operationalization. The latter was accomplished by examining the standardized coefficients (beta) and determining their significance (Stevens & Barcikowski, 1980).

Results

The present research study is guided by two hypotheses and two research questions. The hypotheses make predictions about the results of differently worded argumentativeness scales. The research questions, which are based on the condition that one or both of the hypotheses are confirmed, inquire as to the nature of differences between the scales. This section reports on the results of the analyses used to address the hypotheses and research questions.

The first hypothesis predicted differences between versions of the argumentativeness scale that used the word "arguing" and versions using the word "argument." For tendency to approach arguments, the analysis resulted in a mean of 32.51 with a standard deviation of 7.3 for the "arguing" group (n=224) and a mean of 31.92 with a standard deviation of 7.5 for the "argument" group (n=228). The test of the hypothesis resulted in a t value of .85 (df=450, p.=.395), which is not significant at the .01 level.

For the tendency to avoid arguments dimension, the analysis resulted in a mean of 26.10 with a standard deviation of 6.8 for the "arguing" group (n=223) and a mean of 26.86 with a standard deviation of 7.9 for the "argument" group (n=228). The t-test produced a t value of -1.09 with 449 degrees of freedom (p.=.277) which also is not significant at the .001 level.

The analysis for general trait argumentativeness resulted in a mean of 6.40 with a standard deviation of 12.9 for the "arguing" group (n=223) and a mean of 5.15 with a standard deviation of 14.0 for the "argument" group (n=227). The resulting t value of .99 (df=448, p.=322) is not significant at the .01 level of significance. Therefore, there is no reason to reject the null hypothesis in favor of the research hypothesis that there are differences in response to the argumentativeness scale on the basis of using the word "arguing" or "argument."

The second hypothesis predicted differences between versions of the

argumentativeness scale that mentioned issues and versions that did not mention issues. For the tendency to approach arguments, the no/issues group (n=227) produced a mean of 31.26 with a standard deviation of 7.4 while the issues group (n=225) produced a mean of 33.18 with a standard deviation of 7.2. The test of the hypothesis resulted in a t value of -2.79 (df=450, p.=.005) which indicates that the no/issues group scored significantly lower than the issues group on tendency to approach arguments.

The analysis for the tendency to avoid arguments dimension resulted in a mean of 28.63 with a standard deviation of 7.3 for the no/issues group (n=227) and a mean of 24.31 with a standard deviation of 6.8 for the issues group (n=224). The resulting t value of 6.49 (df=449, p.<.001) is statistically significant at the .01 level of probability. This indicates that the no/issues group scored significantly higher than the issues group on tendency to approach arguments.

The final analysis for hypothesis two concerns general trait argumentativeness. For general trait argumentativeness the no/issues group (n=227) produced a mean of 2.63 with a standard deviation of 13.7. The issues group (n=223) produced a mean of 8.96 with a standard deviation of 12.4. The t-test for trait argumentativeness resulted in a value of -5.15 (df=448, p.<.001) which is significant at .01. This indicates that the no/issues group scored significantly lower on trait argumentativeness than the issues group.

Based on these analyses there is reason to reject the null hypothesis in favor of the alternative hypothesis that the mention of issues or failure to mention issues results in significantly different responses to the Argumentativeness Scale. Further, there is reason to believe that the inclusion of issues results in more argumentativeness.

Since the second hypothesis was confirmed, additional exploratory analyses were conducted to gain a better understanding of the argumentativeness construct

and operationalization. Specifically, two more questions were asked. The first research question asked if there were differences between the original version of the Argumentativeness Scale and the variously worded versions.

Table one contains results of the analysis conducted to address RQ_1. The table contains the means and standard deviations for the three scores for the original scale. Also contained in table one are the means, standard deviations, t-values, and probability levels of the three scores for the four variations in regard to the original form.

---- Table 1 about here ----

Two of the four versions of the scale did not differ significantly from the original measure. The scale using the word "argument" which did not mention issues (MENT) and the scale using the word "arguing" which did not mention issues (ING) did not significantly differ from the original on any of the three scores.

The remaining two versions did differ significantly from the original on two of the three scores. Neither the version that used the word "arguing" and mentioned issues (INGISS) nor the version that used the word "argument" and mentioned issues (MENTISS) significantly differed from the original form on the tendency to approach arguments. However, significant differences were found for the tendency to avoid arguments score. The original measure produced a mean of 28.2 while INGISS produced 24.4 and MENTISS produced 24.2. The associated t values are 4.26 ($p. < .001$) for INGISS and 4.22 ($p. < .001$) for MENTISS. This indicates that both versions mentioning issues result in a lower tendency to avoid arguments.

The two versions that mention issues significantly differed from the original version on the overall general trait score as well. The original scale produced a mean of 3.5 while INGISS produced 8.5 and MENTISS produced 9.4. The t values for the

difference in general trait argumentativeness are -3.06 (p.=.003) for INGISS and -3.40 (p.=.001) for MENTISS. This indicates that versions of the scale mentioning issues result in a higher score for general trait argumentativeness.

The final research question seeks to determine the nature and degree of the relationship between responses on the various forms and responses to the four semantic terms. In order to address the question, multiple regression equations were computed for each of the three scores for each of the five forms. This resulted in fifteen separate equations. The multiple R^2's and standardized coefficients (beta's) for each equation can be found in table two.

- - - Table 2 about here - - -

One of the primary uses of regression is to, "increase knowledge of or explain, the dependent variable" (Stevens & Barcikowski, 1980, p. 3). Research question two is served by attempting to gain an understanding the nature of the various measures by examining the beta weights (standardized coefficients) for each of the semantic terms and the resulting amount of variance (R^2) accounted for by the linear equation.

All of the weights and R^2's can be found in table two. For the sake of brevity, not all will be elucidated here. In general, the strongest equations exist for general trait argumentativeness for the original Argumentativeness Scale (R^2=.42) and the MENT (word "argument" and no mention of issues) version (R^2=.50). An examination of the weights indicates that for all three scores on both of these versions, the contributing semantic terms are "arguing" and "argument over controversial issues." The equations for the version that uses the word "arguing" and makes no mention of issues, follows the same patterns as those for the original scale and MENT. Specifically, the thirty- one percent of the variance accounted for in the general trait score of ING is primarily attributable to the terms "arguing" and "argument over

issues."

The two weakest equations emerged for the INGISS ("arguing" and mention of issues) version and the MENTISS ("argument" and mention of issues) version. For general trait argumentativeness, the equation for MENTISS accounts for twenty-four percent of the variance which is primarily attributable to the semantic term "arguing controversial issues." The equation for INGISS accounts for twenty-seven percent of the variance in general trait argumentativeness. None of the standardized coefficients for this equation are significantly different from zero (at $p<.05$), however, the strongest weight is attributable to the semantic term "argument over issues."

This section of the paper reported on the results of the analysis used to test the hypotheses and pursue the research questions. The following section discusses these results.

DISCUSSION

Few measurement scales have received such rigorous attention regarding reliability and validity as has Infante and Rancer's (1982) Argumentativeness Scale. The commendable efforts of Infante and his colleagues to understand and explicate the construct and operationalization of argumentativeness are representative of superior scientific inquiry. However, questions raised prior to the present study, as well as the results of the present study indicate there may be a need to reconsider the original Argumentativeness Scale. This section discusses some of the findings of the present study and elucidates some of the reasons the original scale should be reconsidered.

The assertion that use of the words "arguing" and "argument" affect social desirability responses to the scale may not be valid. Empirical evidence for the basis of this argument was not obtained since the first hypothesis, which predicted a difference between forms consistently using one of the two words, was not confirmed. In other words, there does not appear to be any difference in responses to the scale on the basis of whether the word "arguing" or "argument" is used.

However, Nicotera's (1989) argument of social desirability may be valid in relation to whether or not the scale mentions issues. In other words, the social desirability effect reported in previous studies may be the result of the individual's believing relational-based argumentation is socially undesirable. This effect may evaporate in a content-based measure that includes the mention of issues. Since past research was based on the original scale, which contains elements of "argument" and "arguing" and mentions issues only some of the time, it is hard to know exactly what may be causing the effect.

Although there was no significant difference on the basis of "arguing" or a "argument," the results obtained in the present study indicate that there is significant difference in scores on the Argumentativeness Scale based on whether or not issues

are mentioned. People appear to be more willing to engage in argumentation and less likely to avoid argumentation when it is clear that the argument is content-oriented. In general, failure to point out issues causes individuals to be less argumentative.

This finding is highly significant and has several important implications. First, this indicates that individuals see *arguments* as something very different than *arguments over issues*. Indeed, an individual is more than three times more likely to be argumentative over issues than an argument where issues are not mentioned (mean of 8.96 as opposed to 2.63). These findings, and past research (Jones, 1988) support the notion that there are definitely two dimensions, most probably the content (issues) and relational (no/issues) dimensions.

A second implication concerns past research and assertions that have been made using the Argumentativeness Scale. The pedagogical issues that have been raised concerning argumentativeness (higher GPA, better skill, ability to train) may be in question. For example, does higher GPA relate to more argumentativeness? Or, does higher GPA relate to greater likelihood interpreting the original scale as meaning "argument/arguing over issues" in all instances? Similarly, does debate training result in more argumentativeness? Or does it simply mean that those trained in debate more often respond to scale items as iff referring to arguments over issues?

These are important questions which must be addressed in light of the results of the present study. Given the large difference between the scales that mentioned issues and the scales that did not, it is suspected that the answer to many of these questions may be affirmative.

If neither of the hypotheses had been confirmed, there would be no need for further analysis since there would be no evidence that the wording of the scale affected the operationalization. However, since a difference exists on the basis of whether or not issues are mentioned, further exploratory analysis is useful to gain a better understanding of the operationalization. One such analysis consisted of

comparing the original Argumentativeness Scale to each of the four variations.

The comparison indicated that there was no significant difference between the original scale and the two versions that did not mention issues (MENT and ING). This is not surprising since differences in responses are due to the mention of issues. The two versions that do differ from the original are INGISS and MENTISS.

What is interesting, although not surprising, about the versions that differ is how they differ. Significant differences were not found for the tendency to approach, yet they were found for tendency to avoid and for general trait. The probable reason for this is found in Jones' (1988) notation that on the original scale most of the approach items appear to be content-based (issue) while most of the avoid items appear to be relational-based (no issue).

The two versions that include issues seem to affect responses in the following manner. First, all approach items mention issues, resulting in a slightly (not statistically significant) higher tendency to approach arguments. Second, the mention of issues for all of the avoid items results in a statistically significant lower score for tendency to avoid arguments. It follows that the resulting general trait score is measuring a much clearer construct, namely arguing over controversial issues rather than the more ambiguous argument or arguing. Since argumentativeness is conceptualized as a, "trait which predisposes the individual to advocate positions on controversial issues" (Infante & Rancer, 1982, p. 73), it appears that both form$_2$ and form$_4$ provide better measures of the trait than the original form.

In order to gain insight into the nature of the various measures, regression equations were computed for the three scores on the various versions of the scale using responses to semantic terms. The regression equation supports the notion that the original form may be somewhat ambiguous. When regression is used to predict a variable, a stronger equation (higher R^2 value) is more desirable. However, in this case, a stronger equation indicates that the operationalization is a linear combination

of the various semantic terms. In other words, a strong equation indicates that the response to the scale can be predicted by "pieces" of responses to the differing terms of "arguing," "argument over issues," "arguing over issues" and "argument." In order for the operationalization to be clear and consistent, different terms should not combine to predict the score.

The strongest regression equation was found for the general trait score of the version of the scale that consistently used the word "argument" with no mention of issues (fifty percent of the variance was accounted for). The second best explained general trait score was for the original scale, where forty-two percent of the variance was accounted for. Primarily, the variance was accounted for by the terms "arguing" and "argument over issues." This is not too surprising since it provides more support for the assertion that the original scale appears to be measuring a somewhat convoluted conceptualization of relational/content argumentativeness.

By contrast, the weakest equations (overall) were found for the version of the scale that consistently used the word "argument" and made mention of controversial issues. Twenty-four percent of the variance for general trait argumentativeness on the MENTISS version was accounted for by the equation. Most of this is attributable to responses to the semantic term of "arguing over issues." This demonstrates that the MENTISS version appears to be a much clearer version of the Argumentativeness Scale than the original.

Of interest is the equation that was found for the avoid score for the MENTISS version. The primary semantic term that contributed to the equation was "argument." The reason for this is unclear. However, it might be speculated that even when the scale consistently employs "argument over controversial issues" there is a relational tone in the negative wordings used in the avoid items. Future research should attempt to clarify this possibility.

Overall, the regression analysis indicates that those scales that consistently

mention issues (the original, ING and MENT) are similar when the semantic terms are regressed on them. The forms that mention issues (INGISS and MENTISS) are different from the other three versions but similar to each other in their semantic make-up.

The version of the Argumentativeness Scale which appears to do the best job of measuring the original construct of argumentativeness appears to be form$_4$ which used the word "argument" and included issues. The regression analysis indicates that there is semantic clarity, and the highest Cronbach alpha's were obtained for this form. Additionally, post hoc analysis indicate that gender differences, which were reported by Infante and Rancer (1982), and which existed for the original version in the present study, did not exist for form$_4$.

An apparent and significant question raised by the present research is: If the original version of the Argumentativeness Scale is not accurately measuring argumentativeness (as defined by the conceptual definition), what is it measuring? Jones (1988) argues that it is measuring tendency to approach content argumentation and tendency to avoid relational argumentation. In theory, this is probably an accurate assertion. However, based on the findings of this study and past research with the scale, the scale may be measuring different phenomena for different individuals.

For example, as was suggested earlier, those individuals who received training in debate may not necessarily be scoring higher on argumentativeness. Rather, they may interpret all items on the scale as referring to arguments over controversial issues. This is a likely possibility. Particularly when one considers that Infante (1982) reports a general trait mean of 5.98 for those students who received both in-class and extracurricular training in debate. This is compared to the general population mean reported by Infante and Rancer (1982) as 3.5 (the same mean was found in the present study for the original form). However, the general population mean for the present study for form$_4$ (MENTISS) is 9.4. It appears, then, that consistently

mentioning issues results in an even higher argumentativeness score than debate training. Further, debate training may cause the respondent to interpret an argument as referring to issues. It remains to be seen whether or not debate training affects responses to the (MENTISS) version of the scale since the present sample did not consist of enough debaters to make valid inferences.

A similar situation may exist for those individuals with high GPA's. Indeed, much of the research and knowledge claims advanced with the original scale should be re-examined. Valid relationships have been found. But without a clear measure of argumentativeness, the nature of those relationships are uncertain.

Although the original Argumentativeness Scale has the appearance of validity, as well as theoretical, developmental and heuristic value, all operationalizations must be scrutinized and refined as the discipline develops. Such scrutinization, and critical questions should never be considered "misguided efforts" (Boster, 1989, p. 6). Indeed, they are empirical issues which need to be pursued as rigorously and scientifically as is initial scale development. Only then can conceptual and operational definitions provide the validity and reliability required by science.

The present empirical scrutinization of the Argumentativeness Scale clearly points to a path for continued research. Future research should attempt to more clearly operationalize the concept of issues-based argumentation. While the consistent inclusion of issues provides a good starting point, the MENTISS scale is not without problems. Further study of the scale may result in a more reliable and valid measure of the construct. Such study should contain all elements of scale development including factor analysis and various measures of validity.

The tendency to avoid dimension of the original scale also provides directions for research. If, as the findings support, this dimension is measuring a tendency to avoid relational-based arguments, it is worthwhile to pursue the measure. Research may identify relational-based argumentation as a separate and important construct. It

would be interesting to know the relationship between such a construct and those of verbal aggressiveness and content-based argumentativeness.

Summary

This study examined Infante and Rancer's (1982) Argumentativeness Scale. The findings of the study indicate that significant differences exist between versions of the scale that consistently refer to issues and those that make no mention of issues. Additionally, scales that consistently mention issues differ significantly from the original. The findings suggest that future research address the measurement of argumentativeness by refining a scale that consistently measures argumentation that is based on issues.

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TABLE ONE

Differences Between Original Form and Variations

	Orig n=112		INGISS n=112		MENT n=116		MENTISS n=111		ING n=111	
	MN	SD	MN t	SD prob	MN t	SD prob	MN t	SD prob	MN t	SD prob
App	31.7	7.4	32.8 -1.34	6.7 .181	30.5 1.26	7.0 .207	33.4 -1.67	7.7 .097	32.0 -0.33	7.8 .740
Avd	28.2	6.9	24.4 4.26	6.2 .000	29.4 -1.29	7.7 .198	24.2 4.22	7.3 .000	27.8 0.45	6.9 .650
GT	3.5	12.9	8.5 -3.06	11.6 .003	1.1 1.40	13.5 .162	9.4 -3.40	13.1 .001	4.3 -0.43	13.7 .670

TABLE TWO

Standardized Coefficients of Semantic Terms
Regressed on All Argumentativeness Scale Versions

			-- COEFFICIENTS --			
		Mult R^2	ING	MENT	INGISS	MENTISS
ORIG:	App	.34	-.32*	.11	-.16	-.29*
	Avd	.34	.46*	-.13	.04	.30*
	GT	.42	-.44*	.13	-.12	-.33*
INGISS:	App	.24	-.15	-.16	-.06	-.23
	Avd	.18	.21	.09	.09	.14
	GT	.27	-.20	-.14	-.08	-.21
MENT:	App	.43	-.50*	-.12	.06	-.19*
	Avd	.43	.49*	.09	-.08	.27*
	GT	.50	-.53*	-.12	.08	-.25*
MENTISS:	App	.17	-.09	-.05	-.24	-.12
	Avd	.22	.08	.28*	.22	.02
	GT	.24	-.10	-.18	-.26*	-.08
ING:	App	.26	-.33*	-.01	-.10	-.18*
	Avd	.26	.36*	.03	.03	.19*
	GT	.31	-.38*	-.02	-.07	-.20*

* indicates t for beta is significant at .05